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WORKING WITH CONSTRAINTS IN MOBILE LEARNING: A RESPONSE TO BALLANCE

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INTRODUCTION

While the enthusiasm that Ballance shows in his commentary (see this issue) for mobile learning and the possibilities that new developments in technology of mobile devices may bring about is commendable, there are several areas of concern in his commentary which deserve mention. My first concern is that the commentary misrepresents the vocabulary learning system described in the Stockwell (2010) article in many respects through, among other things, describing the learning activities inaccurately (it was an intelligent adaptive system), and suggesting that the same format was adopted for both the PC and mobile versions of the system (which was not the case). Secondly, Ballance seems to be stating that since problems that existed at that time were going to be solved by smart phones anyway, many of the findings were already obsolete at the time of publication. Not only does this seem to place an exaggerated expectation on the effects that smart phones may have, but it also fails to consider the ways in which learners engaged in the activities and their views towards mobile learning in general. These issues will be dealt with in more detail later, but in short, this paper will argue that (a) Ballance has failed to comprehend the activities described and the learning environment; and (b) Ballance has unrealistic expectations of the effect that new technologies have on learner attitudes towards using them for learning purposes.

BALLANCE'S CLAIMS

To summarise, Ballance primarily appears to be arguing:

1. that the vocabulary activities in Stockwell's (2010) study could have been replicated with pen and paper and were not suitable for mobile phones; and
2. that the findings in Stockwell's (2010) study are obsolete, as smart phones will solve the majority of problems that were apparent in pre-smart phones and improve learner engagement in activities.

As I deal with each of these points, I would also like to point out some fundamental issues regarding mobile learning which are relevant to my responses.

RESPONSE TO CLAIM ONE: NATURE OF THE ACTIVITIES

Ballance makes a number of negative comments about the learning activities that were used in the study, perhaps best illustrated by his claim that "the study's conclusions seem to apply most properly to… completing pen and paper type vocabulary activities on mobile phones and computers" (p. 22). This claim demonstrates (a) that Ballance had insufficient understanding of the activities that were used in the project, believing that they were in essence paper-based activities that were transferred to PC and mobile phones, and (b) even if this were the case, Ballance holds preconceived ideas that activities carried out on mobile devices must not replicate paper-based activities.

Regarding the first of these points, due to space limitations, the 2010 article did not include all of the details of the system that was used, and reference was made to earlier studies (Stockwell, 2007, 2008) where more of the specifics were provided. Again, as information has already been given in these two sources (and also in the 2010 article), I will only explain that which is immediately relevant to Ballance's claims here. Perhaps the most important point to clarify is that the vocabulary selected for the activities were taken from authentic videos of human interest stories from a US news program. The videos were watched during class time while learners completed a range of listening comprehension questions in

groups using an accompanying text book. Given the relatively low level of the learners, many of the learners experienced difficulties with the vocabulary that came up in the videos, so key vocabulary items were selected so that learners could learn them in order to better understand the videos and participate more actively in class discussions about the content of the videos. Since class time was limited, I felt that it would be beneficial if learners could have a means through which they could learn these difficult vocabulary items in their own time, while at the same time to keep records where I could get an indication of how much difficulty learners were actually having with learning the vocabulary items.

The activities were developed as part of an intelligent system that kept detailed records of what learners knew based on their performance in the vocabulary activities, providing learners with items that the learners had difficulty with far greater frequency until the system judged that the learners had acquired them. This score was calculated by assigning a score depending on how many times the learner was able to get the questions about each item correct (see Stockwell, 2007, for a description). Questions in the system ranged from recognition-type questions in the early stages of each unit through to production—specifically, the writing of a single word—after learners had been exposed to each item at least twice. It should be pointed out that the learners had also been exposed to the items in context in various listening activities covered in the class. After extensive pre-testing of the system before its implementation in early 2007, it was confirmed that the mobile version of the site showed clearly on a range of mobile phones provided by various telecommunications companies at the time, and that selecting items in the multiple choice and inputting of the text was not overly difficult, even on the small keypads.

In addition, the system also included push and pull modes, the push mode being where information was sent to the learners' mobile devices, and the pull mode being where students needed to access the site themselves (see Mellow, 2005; Motiwalla, 2007). The push mode in this case was e-mails that were sent to learners' mobile phones with lists of the vocabulary items that they had experienced difficulties with during the activities, and, if a learner had not accessed the system for three days when a unit was still incomplete, a reminder was sent out to let them know that they should access the activities. The reason for the use of mobile e-mail was that at the time, Short Message Service (SMS) was not commonplace in Japan, and that each mobile phone has its own unique email address that could receive messages sent from either mobile phones or from PCs. The messages also included a link to the site so that learners could immediately access it from their devices without the need to retype the URL. Students were also provided with a QR code which they could scan with their mobile phones to bring up the URL in their mobile phone browsers without typing.

Given the complexity of the system in its adaptability to learners' input and its integration of both push and pull modes, I fail to see how this could be compared to simple pen and paper activities as Ballance suggests. In saying this, however, his statement prompted me to consider the issue of whether replicating pen and paper activities on mobile devices is necessarily the bane of mobile learning that Ballance appears to brand it as. We already replicate many things that were traditionally done with pen and paper on mobile devices. Many of us use our mobile devices as calendars, train schedules, and, even more so with the spread of tablet computers, books. While of course there are some added benefits in the functionality of using mobile devices for these purposes, one might argue that one of the primary reasons why we opt to use a mobile device for these is that we have everything in one place on a device that we typically carry with us anyway. Although the activities described in the Stockwell studies would be difficult to replicate with pen and paper, there have been other examples of mobile learning could be thought to also largely be a replication of pen and paper activities, such as flashcards (Lin, Kajita, & Mase, 2008) or mini lessons (Thornton & Houser, 2005), which were well received by learners. Obviously, there may be some advantage in offering these in conjunction with more interactive types of activities, but they appeared to serve their purpose as accessible tools in learners' hands, meaning that there was a greater chance of exposure to the target language than if these tools were not available to learners. Different learners have different learning styles, and providing a range of tools—some of which

are more interactive, and some of which are less interactive—means that there is greater chance of being able to meet the needs and preferences of a wider range of learners.

Another indication of Ballance's lack of understanding of the learning activities is his statement that "Stockwell (2010) appears to assume that decisions about the design of the learning software can be separated from the platform they will be delivered on" (p. 22), which is based on his misled assumption that the mobile and PC activities were the same. A look through the details of the earlier articles to which the reader is directed will show that while the content was the same, there was quite a marked difference between the activities for the mobile platform and the PC platform, and that the design for each was quite carefully planned to tailor it to the platform it was to be used on. For clarity's sake, however, I will reiterate this here.

In very broad terms, the general layout of the screen on the PC and the mobile were relatively similar in terms of where things could be found and the colour schemes. A commonality was that the activities could be left off at any time during a specific unit, and the system would record what the learners had done, and they could seamlessly pick up from where they left off from either the PC or the mobile phone. Each individual activity in the units was designed to be able to be completed in a span of 20–60 seconds (depending on the type of activity) in an attempt to allow learners to use even very small snippets of time that they found available. At the same time, learners could, should they so desire, focus their efforts and complete an entire unit, which generally took around 10–30 minutes, depending on the number of items that they experienced difficulties with and the platform that they used.

The activities for each platform were accessible from completely different URLs, and the PC version was accessed through the Moodle site that was used for the subject, whereas the mobile site was accessed from a separate URL that could be used without needing to go through Moodle. Students were recommended to add the URL to their favourites list on their phones, but they could, as described earlier, use a QR code with the barcode reader function of their mobile phones to access it. The page size, when seen in a mobile web browser, was fit to the screen, a very common practice for mobile sites in Japan, and the number of items per page could be controlled by the learners, from a smaller to a larger number of items as desired. Learners could have different numbers of items presented on both the PC and mobile platforms, but contrary to my expectations, most learners opted for the middle figure of eight items on both platforms. Demonstrations of how to change the number of items were given in the first class, and a help menu was provided in both the PC and mobile versions. Graphics were removed from the mobile version given the potential for extra downloading costs and to make the most of the screen without unnecessary cluttering. Thus, the layout and the design screens of the PC and mobile were not the same, and a good deal of time and effort was expended to ensure that the designs were suitably adapted to each to make them as easy as possible to use. The nature of the activities themselves was very similar, but the reason for this is that these activities were deemed to be the most effective in learning the necessary vocabulary given learners' previous experiences with language learning and from discussions with learners during the development of the system. In the same way, the screens were specifically tailored to suit the technology of the time, and this design remained relevant across the three years of the study.

The conclusion that Ballance makes about the learning activities is that they were the cause of learners not exploiting "dead time" because the activities "were not designed for this kind of environment or this kind of platform" (p. 22). As the description above shows, the activities were most certainly designed to suit both PC and mobile platforms respectively, and took advantage of the affordances of each to maximise the learning experience for learners. Apart from the factual inaccuracy of the statement, his statement also fails to account for the large number of learners (58.8% in 2007, 78.0% in 2008, and 42.2% in 2009) who did not access the mobile activities at all, and thus had no grounds to make judgments as to whether the activities were suited to their mobile phones or not. Nor does his statement take into consideration the number of learners who were aware that it took longer to complete the activities on their mobile phones, yet made the decision to use the mobile phone until the end, despite the

fact that they could use the PC if they so desired. It is obvious that there are other factors at play that go beyond the activities, and as was reflected by comments from learners in an earlier study, there were learners who expressed that they felt that learning on a mobile phone "didn't feel like studying" and that a mobile phone is "not a tool for studying" (Stockwell, 2008, p. 260). These were learners who had decided from the outset that they did not want to learn using mobile phones as they were already comfortable with learning with the PC, largely due to the lack of external distractions, and to blame this lack of use on the activities themselves seems somewhat naïve when it is obvious that there were other factors at play that influenced the outcome (which was the objective of the study in the first place).

In conclusion of this section, I will not make the claim that there were not alternatives that could have been used instead of the types of activities that were used with the learners in this study. However, those that were selected were done so with an eye on the complete learning environment in which they were to be used, the pedagogical philosophy held by the teacher-researcher, and the voices of other learners who had taken part in the course before, and in that light, I would argue that they were appropriate for both the PC and mobile platforms.

RESPONSE TO CLAIM TWO: THE IMPACT OF SMART PHONES

A fundamental element of any teaching situation is to be aware of the environment. This environment is always exceedingly complex, made up of a matrix of factors relating to the learners, the teachers, the parents, and the institution, at the very least (see Colpaert, 2010, for an interesting discussion of using learners' personal goals in the design process). When technology is included in the equation, obviously things become even more complex, particularly when the technology is something that learners bring with them and that the teacher has no control over, nor should I say, any right to have control over.

At the time of the study, which ran from April 2007 through to July 2009, none of the students had smart phones, and indeed, for cost reasons, there was even resistance amongst learners with regard to purchasing them. Ballance himself indicates that the iPhone and Android systems came out while the study was in progress, and these new phones took another year or two before they found themselves in learners' pockets. In the latter half of 2009 (after the study was completed), a small number of students did indeed purchase smart phones, but as a follow-up survey administered to the same students found, they were owned by less than 10% of the students. In early 2010, with the new cohort of students (the Japanese academic year starts from April), the ownership of smart phones had increased to around 25%, reaching around 30% at the end of 2010. The same survey conducted in early and late 2011 gave results of around 40% and 45% respectively, and late April 2012 results showed that smart phone ownership amongst students had reached a little over 60%. While this certainly shows a massive jump in ownership of smart phones over the past three years, it is also clear that nearly 40% of learners are non-users of smart phones, and it is important to ensure that their needs are also adequately met. While I will deal specifically with the issue of smart phones later, suffice to say that smart phones were not a popular technology at the time of the study, and even if the same study were to be run now, I would need to take into consideration the learners who do not use smart phones, making up more than one-third of all of the learners.

Without meaning to act at the expense of the smart phone users, there are times when teachers must aim towards the lowest common denominator. This is particularly the case where self-owned technology is involved, as placing expectations on learners to have newer technologies can cause feelings of isolation and even resentment. At the same time, to make the assumption that non-smart phone users will prefer to use the PC while smart phone users will prefer to use their mobile phone also represents a naïve view of the learners.

What, then, can we say the impact of smart phones is? Are they really able to solve the problems that were evident in these pre-smart phones and result in learners rushing to them to continue their learning

while in transit? A look at some of the basic differences between smart phones and pre-smart phones may take us some way towards a response to Ballance's claim that the results are obsolete due to the technology used. Physically, there are some obvious differences. Being based in Japan, I'm afraid that I am only able to explain pre-smart phones that are available in Japan, but considering that these were devices that were used in the study, perhaps this is the most appropriate. A typical pre-smart phone in Japan has a 3 inch screen, compared to that of the iPhone 4S, which is 3.5 inches, and of the Samsung Galaxy S III, which is an impressive 4.8 inches. Japanese pre-smart phones are typically flip phones or slide phones, which means that there is, in addition to the screen, a keypad and centre "joystick" which allows for moving through menus and webpages. Smart phones, on the other hand, use touch screens for manipulating icons and virtual keyboards for inputting text, the latter taking up as much as one-third to one-half of the screen when used. Looking at plain figures themselves would seem to suggest that smart phones have an advantage in screen size compared to pre-smart phones, but that this advantage is somewhat reduced when the virtual keyboard is in use. Manipulation of icons on the screen is also very convenient with a smart phone given the touch screen, and use of the virtual keyboard is for the most part relatively easy to input text. Scrolling is done with the joystick on pre-smart phones and through running one's finger along the screen on smart phones.

While these differences are certainly important ones, are they relevant in the scope of the limited amount of information required to be put on a screen and the minimal input that would be required in activities that could be completed in short spaces of time? One might argue that the differences are perhaps not as large as we may imagine. Certainly, it is possible to check your email and watch YouTube videos at the same time as accessing learning activities, which cannot be done on pre-smart phones, but is it not possible that these could be extraneous distractions that eventually prevent learners from engaging in activities when using them? In saying this, however, it is obvious that at some point in the not-too-distant future, we are likely to see essentially all mobile phones carried by our learners being "smart" phones, or whatever the next generation of phones beyond those that are currently available is going to be, and discussions of differences of what came beforehand will indeed be irrelevant. My point is, however, that screen sizes of mobile phones are still small and inputting is still difficult compared to, for example, a tablet computer or PC, thus the discussions of screen size and input difficulties of mobile phones for language learning purposes are likely to continue, at least as long as mobile phones remain a comparable size to those used today.

Another feature of smart phones that Ballance suggests is mobile apps. Based on Godwin-Jones (2011), he argues that "MALL activities should be app based, exploiting touch screen technology and designed to be used in the situations MALL has opened up" (Ballance, 2012, p. 22). While Ballance himself fails to give any further details of what kind of apps would be appropriate, we might consider three different possibilities of apps that learners might use. The first of these is commercial apps, which learners can download for somewhere ranging between two and 50 U.S. dollars, depending on what is involved in the app. While this is a promising potential market, there have been learners that have expressed disappointment and distrust regarding the available commercial apps for language learning (see Stockwell & Stockwell, 2012). The majority of learners in this study indicated an unwillingness to pay for apps for learning purposes (which might be compared to learners in earlier studies who expressed an unwillingness to pay for Internet connectivity for learning), and a number of learners who did download language learning apps found that the content was unhelpful or even trivial. The second type of app is one that is created by teachers themselves. This is an issue that has been an ongoing one with regard to developing any materials that utilise technology. Teachers have long lamented the lack of skills or funding required to create good learning materials (e.g., see Pelgrum, 2001), and to this end it is not surprising to see the same problem arising with regard to materials for mobile devices as well. When CALL itself was still emerging on an international scale, the majority of the discussions centred around the selection of Windows vs. Macintosh, and advocates on each side stood firmly by their technology of choice. For

mobile devices, we see the game opened up even more widely, where native mobile apps written for, among others, iOS, Android, Blackberry, WebOS, and Windows Phone 7 are mutually incompatible (see Godwin-Jones, 2011, for a discussion). With most teachers struggling to be able to gain sufficient skills to create apps for one of these operating systems, the idea of having to make separate apps for each of the available operating systems is, needless to say, far from practical. The last main type of app is a Web app, which makes it possible to create apps which can be used across different platforms. In essence, Web apps are apps that operate using web browsers. They may be downloaded onto the device itself or alternatively they may operate from a remote server. In one sense, these are perhaps the only practical alternative to teachers who want to develop their own apps that can be used by learners who possess a range of different technologies, but they are of course limited in many ways to the functionality of web browsers.

As this brief discussion of apps alludes to, apps may have the potential to solve some of the problems of technologies that preceded them, but at the same time, they also create new problems of their own, particularly with regard to compatibility issues. More importantly, just because something has been written as an app does not mean that it is pedagogically sounder than something that has been written using other technologies such as web browsers. In this way, Ballance's claim that apps (and indeed smart phones themselves) will solve the problems of earlier technologies fails to take into complexities of task/activity design, and in one sense walks down the same path of those early pioneers of mobile learning who approached mobile technologies as providing a way for learners to engage in tasks outside of the classroom simply because the technologies existed. Very relevant to this discussion is the observation of Bax (2003) regarding two fallacies that are often seen with regard to the use of technology in language learning: (a) the belief that a new technology can do more than it actually can; and (b) the belief that the existence of new technologies is the only relevant factor leading to its success. While I don't believe that Ballance would claim that the simple existence of smart phones can lead to successful implementation of mobile learning, his commentary most certainly has undertones of the first fallacy, exhibiting an inflated expectation that new technologies will solve the problems of earlier ones because they have enhanced functionality. Regardless of what technology we used, we are likely to see preferences that some learners will opt to use it in the manner and regularity that we had predicted, while others will either use it in ways that are very different from what we had expected, or alternatively, fail to use it at all (see Fischer, 2007, for a discussion of learner usage patterns). In some cases, this may well be caused by the type of activities used, where we see some percentage of the learners who engage in activities very successfully and others who do not—particularly in an environment where learners are working on their own devices completely free of teacher intervention. Alternatively, the variations in the outcomes may simply be the inevitable result of individual learner differences and preferences, that teachers may have little choice but to accept.

CONCLUSION

I would like to close this commentary with again indicating that I am happy to see enthusiasm for the potential of mobile learning such as that expressed by Ballance, and to that end, discussion of this type is not only welcome but necessary. It is a shame, then, that he failed to grasp the essence of the activities that were used across the three years, and indeed, to some degree, even the nature of the 2010 study itself. The study was not intended as a comparison of PCs and mobile phones for learning vocabulary, but rather as a means of trying to shed some light on to why learners opted to use PCs over mobile phones for language learning activities, despite the fact that the activities on the mobile platform were designed for very short periods of time to be used effectively while on the move. Ballance appears to have jumped to the conclusion that it had to have been the activities or the technology which resulted in the learners opting not to use the mobile phones, with insufficient understanding of what was used in the study. Such an assumption would presumably be based on his personal attitude towards the potential of mobile technologies, and perhaps he himself would most certainly have capitalised on the opportunities to exploit

the "dead spaces," provided he had access to a device that included apps suited to his own approach to learning a language, but care should be taken to avoid excessive generalisations based on personal assumptions. It is also unfortunate that if Ballance held such strong views about how learning opportunities through mobile devices could have been better created and capitalised upon, that he failed to provide any concrete suggestions beyond using smart phones and apps, or more importantly, any empirical evidence to support his suggestions rather than relying solely on speculation. Should he undertake such a study, however, I myself would most look forward to seeing the results to see how I could apply them to my own learning environment.

As teachers, we are always faced with constraints that we must overcome. In some cases this is the range of technologies that are available to us, and in other cases it is our own skills and time to create materials that we believe would be beneficial for our learners. With technological advancements, there is increased pressure on teachers to provide professional tools that learners feel are useful, and this situation can make it easy for us to take our focus off what it available in the current environment towards what will become available in the future. Care must be taken to ensure that pedagogy takes a primary role in the design of activities, and that the devices, mobile or otherwise, are selected as a natural outcome of an analysis of the learning goals and the pedagogical approach (see Colpaert, 2006), and not just because they are new and/or popular in non-educational settings. Emerging mobile technologies certainly do have the potential to enrich our learners' learning experiences, but it is essential to avoid sacrificing sound pedagogy for the sake of using technologies (Felix, 2003). Mobile learning will continue to take on new shapes and forms as it becomes more familiar to both teachers and learners. The way in which it develops, however, will continue to be constrained by practical factors that include but extend beyond the availability of technologies.

Teachers who have been in the field for a long time have seen, and continue to see, a massive shift in the tools that are used and expectations of them held by learners. Learners themselves, however, are generally in the system for such a short time that the snapshot view of education that they have is the only model of learning that they know, and they have little interest in what happened beforehand and really of what will happen after they finish. Our goal as teachers is to gain an understanding as quickly as possible of the expectations of our learners, and to move with the times, adapting to the environment of now while keeping a keen eye on the environment of the future—including developments beyond smart phones—for our upcoming students of years to come.

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